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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/008,473

11/09/2001

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01/25/2006

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EXAMINER

STEVENS, THOMAS H

ART UNIT

PAPER NUMBER

2123

DATE MAILED: 01/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/008,473

Applicant(s)

ENENKEL ET AL.

Examiner

Thomas H. Stevens

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2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 23-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 and 23-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-19,23-44 were examined.
2. Claims 20-22 were cancelled.

Section I: Non-Final Rejection (3rd Office Action)

Claim Objection

3. Claims 19 and 41 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicants are required to cancel the claims, or amend the claims to place the claims in proper dependent form, or rewrite the claims in independent form. Claims do not refer to a preceding claim as well as referring back to another multiple dependent claims.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

5. Claims 2,24 and 44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. The term "desired accuracy" in claims 2 and 24 is a relative term, which renders the claim indefinite. The term "desired accuracy" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Thus the examiner has not afforded patentable weight of this claim.

7. The term “operatively associated” in claim 44 is unclear within the context of the claim. However, examiner assumes the library applies to any software “related” within the genre of this specific art.

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9. Claims 1-19,23-44 are rejected under 101 since the limitations recite arithmetic operations via a data signals (e.g., claim 1, line 17 and claim 23, line 14) as well as arithmetic equations/functions (e.g., claims 15 and 37 Bessel functions; claims 15-16, 37-38, error functions; claim 33, Homer’ Rule).

10. The following paragraphs are excerpts from patentable subject matter eligibility:

If the “acts” of a claimed process manipulate only numbers, abstract concepts or ideas, or signals representing any of the foregoing, the acts are not being applied to appropriate subject matter. Benson, 409 U.S. at 71-72, 175 USPQ at 676. Thus, a process consisting solely of mathematical operations, i.e., converting one set of numbers into another set of numbers, does not manipulate appropriate subject matter and thus cannot constitute a statutory process.

In practical terms, claims define nonstatutory processes if they:
– consist solely of mathematical operations without some claimed practical application (i.e., executing a “mathematical algorithm”); or

– simply manipulate abstract ideas, e.g., a bid (Schrader, 22 F.3d at 293-94, 30 USPQ2d at 1458-59) or a bubble hierarchy (Warmerdam, 33 F.3d at 1360, 31 USPQ2d at 1759), without some claimed practical application.

Thus, a claim that recites a computer that solely calculates a mathematical formula (see Benson) or a computer disk that solely stores a mathematical formula is not directed to the type of subject matter eligible for patent protection.

Section II: Response to Applicants' Arguments (4th Office Action)

35 U.S.C. § 112 2nd

11. Applicants are thanked for addressing this issue. Rejection to claims 20-22 and 23-44 based upon the previous office action are withdrawn.

35 U.S.C. § 101

12. Applicants are thanked for addressing this issue. The applicants executed the suggestion from the examiner by amending the claims to reflect the floating-point limitation to negate the 101 rejection. The examiner conferred with the attorney for this case stating this limitation should overcome the rejection but The Office might override the examiner's suggestion.

Upon further review of the amended claims, the search discovered related art to the invention by applicants titled "Gustavson et al, "The Fused Multiply-Add Instruction Leads to Algorithms for Extended-Precision Floating Point: Applications to Java and High-Performance Computing" which teaches floating point events via a machine or

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computer. Now IEEE standard 754-1985 summarily defines floating point as a binary arithmetic process (Gustavson: page 2, Introduction section, left column) to which the claims within the floating-point genre to which there is no expansion of limitations towards a specific application arithmetic processes as recited by the claims are silent with regard to additional detail of other events. Rejection stands.

Citation to Relevant Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- IEEE Standards 2000: teaches IEEE standard 754 *Standard for Binary Floating-Point Arithmetic*.
- Fateman et al., "Fast Floating-Point Processing in Common Lisp" 1995 ACM pg.26-62 teaches using a higher-level programming language, Lisp, for numerical floating-point computations.
- Sammet-J.E., "Survey of Formula Manipulation" 1996 ACM pg.555-569 teaches a method simplifying arithmetic computations.
- Gotwals-J.K., "Processing Power on the IBM Personal Computer" 1983 pg.132-142 teaches significant advances in usable memory size and floating-point computing power.
- US Patent 4,720,809 teaches a hybrid arithmetic processor which combines attributes of floating point with logarithmic number system.
- US Patent 5,463,574 teaches an apparatus for executing reduction relative to IEEE 754 standard floating-point format.

Correspondence Information


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. Tom Stevens whose telephone number is 571-272-3715, Monday-Friday (8:00 am- 4:30 pm EST).

If attempts to reach the examiner by telephone are unsuccessful, please contact examiner's supervisor Mr. Leo Picard ((571) 272-3749). The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Answers to questions regarding access to the Private PAIR system, contact the Electronic Business Center (EBC) (toll-free (866-217-9197)).

January 19, 2006

TS


Paul L. Rodriguez T20/06
Primary Examiner
Art Unit 2125